

What Is Claimed Is:

1. A propagation environment notification method in a radio communication system constituted by a radio base station and a radio terminal, comprising:

a first step of sending conditions about a user's area layout from

5 a user terminal to a server via a communication line;

a second step of generating said user's area radio propagation environment information based on said conditions by said server receiving said conditions; and

10 a third step of sending said radio propagation environment information from said server to said user terminal via the communication line.

2. The propagation environment notification method in a radio communication system according to Claim 1, wherein said first step comprises: an eleventh step of sending a service start command from said user terminal to said server;

5 a twelfth step of sending software for clients of predetermined form to said user terminal from said server receiving said service start command;

a thirteenth step of inputting said conditions from said user terminal based on said software for clients; and

10 a fourteenth step of sending said conditions from said user terminal to said server.

3. The propagation environment notification method in a radio communication system according to Claim 2, wherein said software for clients comprises:

processing of obtaining said conditions;

5 processing of converting said conditions into formats capable of being used in processing on said server's part; and format conversion and display processing for presenting to the user said radio propagation environment information obtained through the processing on said server's part.

4. The propagation environment notification method in a radio communication system according to Claim 1, wherein said conditions are comprised of user's area appliance placement information and radio base station information.

5. The propagation environment notification method in a radio communication system according to Claim 2, wherein said thirteenth step is comprised of:

a twenty-first step of performing input and edition of user conditions (said user's area appliance placement information and said radio base station information);

a twenty-second step of making a determination on whether or not said user's conditions are correctly inputted;

10 a twenty-third step of making a determination on completion of said input of conditions, and a twenty-fourth step of converting said input conditions into formats capable of being used on said server's part.

6. The propagation environment notification method in a radio communication system according to Claim 3, wherein said software for clients comprises:

an editor portion for said processing of obtaining conditions; and

Sub
al

5 a display portion for said display processing.

7. The propagation environment notification method in a radio communication system according to Claim 6, wherein said editor portion has a function of having appliance placement specific of each user and so on inputted from said user terminal and converting user specific information such as said appliance placement into a predetermined format.

8. The propagation environment notification method in a radio communication system according to Claim 6, wherein said display portion has a function of having said radio propagation environment information displayed on said user terminal in a form convenient for the user.

9. The propagation environment notification method in a radio communication system according to Claim 5, wherein said twenty-first step comprises:

a thirty-first step of dividing the appliance in said appliance placement information into predetermined shapes; and

a thirty-second step of generating information of the position of said divided appliance.

10. The propagation environment notification method in a radio communication system according to Claim 9, wherein said position information is three-dimensional information.

11. The propagation environment notification method in a radio communication system according to Claim 5, wherein in said twenty-first step, information of the position in which said radio base station is placed, information of antenna types and information of sending

Sub
a
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

5 electric power are inputted as said radio base station information.

12. The propagation environment notification method in a radio communication system according to Claim 1, wherein the radio propagation environment information in said second step is generated by using a propagation simulating program.

13. The propagation environment notification method in a radio communication system according to Claim 1, wherein the radio propagation environment information generated in said second step is information obtained from receipt electric power and delay variance information in each observation area in the case of dividing said area into a plurality of observation areas.

14. The propagation environment notification method in a radio communication system according to Claim 1, wherein the radio propagation environment information generated in said second step is obtained by generating rays based on the antenna pattern defined in said radio base station, and considering reflection and diffraction by the appliance in said area.

15. The propagation environment notification method in a radio communication system according to Claim 1, wherein said second step is comprised of:

a forty-first step of defining the number of observation areas M for an observation area ID that is a variable for identifying observation areas;

a forty-second step of using ray tracing to estimate a propagation property in the observation area defined by said observation area ID;

a forty-third step of storing the receipt electric power and delay
 10 variance equivalent to the result obtained in said forty-second step
 in propagation property data having an arrangement with said
 observation area ID as an index;

a forty-fourth step of subtracting 1 from said observation area ID;

a forty-fifth step of making a determination on whether or not said
 15 observation area ID is greater than 1; and

Sub
 a forty-sixth step of making a determination on possibility of
 communication in each observation area if said observation area ID
 is smaller than 1 as a result of this determination.

16. A propagation environment notification system in a radio
 communication system constituted by a radio base station and a radio
 terminal, comprising:

condition sending means for sending conditions about the user's area
 5 layout from a user terminal to a server via a communication line;
 information generating means for generating said user's area radio
 propagation environment information based on said conditions by said
 server receiving said conditions; and

information sending means for sending said radio propagation
 10 environment information from said server to said user terminal via
 the communication line.

17. The propagation environment notification system in a radio
 communication system according to Claim 16, wherein said condition
 sending means comprises:

start command sending means for sending a service start command from

5 said user terminal to said server;

software sending means for sending software for clients of predetermined form to said user terminal from said server receiving said service start command;

10 condition inputting means for inputting said conditions from said user terminal based on said software for clients; and

second condition sending means for sending said conditions from said user terminal to said server.

18. The propagation environment notification system in a radio communication system according to Claim 17, wherein said software for clients comprises:

processing of obtaining said conditions;

processing of converting said conditions into formats capable of being used in processing on said server's part; and.

format conversion and display processing for presenting to the user said radio propagation environment information obtained through the processing on said server's part.

19. The propagation environment notification system in a radio communication system according to Claim 16, wherein said conditions are comprised of user's area appliance placement information and radio base station information.

20. The propagation environment notification system in a radio communication system according to Claim 17, wherein said condition inputting means is constituted by:

inputting/editing means for performing input and edition of user

5 conditions (said user's area appliance placement information
and said radio base station information);
determining means for making a determination on whether or not said
user's conditions are correctly inputted;
input completion determining means for making a determination on
10 completion of said input of conditions; and
format converting means for converting said input conditions into
formats capable of being used on said server's part.

21. The propagation environment notification system in a radio
communication system according to Claim 17, wherein said software for
clients comprises:

an editor portion for said processing of obtaining conditions; and
5 a display portion for said display processing.

22. The propagation environment notification system in a radio
communication system according to Claim 21, wherein said editor portion
has a function of having appliance placement specific of each user
and so on inputted from said user terminal and converting user specific
5 information such as said appliance placement into a predetermined
format.

23. The propagation environment notification system in a radio
communication system according to Claim 21, wherein said display
portion has a function of having said radio propagation environment
information displayed on said user terminal in a form convenient for
5 the user.

24. The propagation environment notification system in a radio

communication system according to Claim 20, wherein said inputting/editing means comprises:

dividing means for dividing the appliance in said appliance placement information into predetermined shapes; and
position information generating means for generating information of the position of said divided appliance.

25. The propagation environment notification system in a radio communication system according to Claim 24, wherein said position information is three-dimensional information.

26. The propagation environment notification system in a radio communication system according to Claim 20, wherein in said inputting/editing means, information of the position in which said radio base station is placed, information of antenna types and information of sending electric power are inputted as said radio base station information.

27. The propagation environment notification system in a radio communication system according to Claim 16, wherein the radio propagation environment information in said information generating means is generated by using a propagation simulating program.

28. The propagation environment notification system in a radio communication system according to Claim 16, wherein the radio propagation environment information generated by said information generation means is information obtained from receipt electric power and delay variance information in each observation area in the case of dividing said area environment into a plurality of observation areas.

29. The propagation environment notification system in a radio communication system according to Claim 16, wherein the radio propagation environment information generated by said information generating means is obtained by generating rays based on the antenna pattern defined in said radio base station, and considering reflection and diffraction by the appliance in said area.

30. The propagation environment notification system in a radio communication system according to Claim 16, wherein said information generating means is constituted by:

M defining means for defining the number of observation areas M for an observation area ID that is a variable for identifying observation areas;

propagation property estimating means for using ray tracing to estimate a propagation property in the observation area defined by said observation area ID;

storing means for storing the receipt electric power and delay variance equivalent to the result obtained by propagation property estimating means in propagation property data having an arrangement with said observation area ID as an index;

subtracting means for subtracting 1 from said observation area ID,

ID determining means for making a determination on whether or not said observation area ID is greater than 1; and

communication possibility determining means for making a determination on possibility of communication in each observation area if said observation area ID is smaller than 1 as a result of this determination.

31. A user terminal for use in a propagation environment notification system in a radio communication system constituted by a radio base station and a radio terminal, comprising:
 condition sending means for sending conditions about the user's area
 5 placement from a user terminal to an object apparatus via a communication line; and

Sub
ai
information receiving means for receiving radio propagation environment information for said conditions from said object apparatus via the communication line.

32. The user terminal according to Claim 31, wherein said condition sending means comprises:

start command sending means for sending a service start command from said user terminal to said object apparatus;

condition inputting means for inputting said conditions from said user terminal based on software for clients of predetermined form sent to said user terminal from said object apparatus receiving said service start command; and

10 second condition sending means for sending said conditions from said user terminal to said object apparatus.

33. The user terminal according to Claim 32, wherein said software for clients comprises:

processing of obtaining said conditions;

processing of converting said conditions into formats capable of being
 5 used in processing on said object apparatus's part; and

format conversion and display processing for presenting to the user

said radio propagation environment information obtained through the processing on said object apparatus's part.

34. The user terminal according to Claim 31, wherein said conditions are comprised of user's area appliance placement information and radio base station information.

35. The user terminal according to Claim 32, wherein said condition inputting means is constituted by:

inputting/editing means for performing input and edition of user conditions (said user's area appliance placement information and said radio base station information);

determining means for making a determination on whether or not said user's conditions are correctly inputted;

input completion determining means for making a determination on completion of said input of conditions; and

format converting means for converting said input conditions into formats capable of being used on said object apparatus's part.

36. The user terminal according to Claim 33, wherein said software for clients comprises:

an editor portion for said processing of obtaining conditions; and a display portion for said display processing.

37. The user terminal according to Claim 36, wherein said editor portion has a function of having appliance placement specific of each user and so on inputted from said user terminal and converting user specific information such as said appliance placement into a predetermined

format.

Sub
a1

5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100

38. The user terminal according to Claim 36, wherein said display portion has a function of having said radio propagation environment information displayed on said user terminal in a form convenient for the user.

39. The user terminal according to Claim 35, wherein said inputting/editing means comprises:

dividing means for dividing the appliance in said appliance placement information into predetermined shapes; and

position information generating means for generating information of the position of said divided appliance.

40. The user terminal according to Claim 39, wherein said position information is three-dimensional information.

41. The user terminal according to Claim 35, wherein in said inputting/editing means, information of the position in which said radio base station is placed, information of antenna types and information of sending electric power are inputted as said radio base station information.

42. The user terminal according to Claim 31, wherein the radio propagation environment information in said information generating means is generated by using a propagation simulating program.

43. The user terminal according to Claim 31, wherein the radio propagation environment information generated by said information generation means is information obtained from receipt electric power and delay variance information in each observation area in the case of dividing said area environment into a plurality of observation areas.

44. The user terminal according to Claim 31, wherein the radio propagation environment information generated by said information generating means is obtained by generating rays based on the antenna pattern defined in said radio base station, and considering reflection and diffraction by the appliance in said area.

45. The user terminal according to Claim 31, wherein said information generating means is constituted by:

M defining means for defining the number of observation areas M for an observation area ID that is a variable for identifying observation areas, propagation property estimating means for using ray tracing to estimate a propagation property in the observation area defined by said observation area ID;

storing data means for storing the receipt electric power and delay variance equivalent to the result obtained by propagation property estimating means in propagation property data having an arrangement with said observation area ID as an index, subtracting means for subtracting 1 from said observation area ID;

ID determining means for making a determination on whether or not said observation area ID is greater than 1; and

communication possibility determining means for making a determination on possibility of communication in each observation area if said observation area ID is smaller than 1 as a result of this determination.

46. A server for use in a propagation environment notification system in a radio communication system constituted by a radio base station and a radio terminal, comprising:

condition receiving means for receiving conditions about the
 5 user's area layout from a user apparatus via a communication line;
 and
 information sending means for sending radio propagation environment
 information for said conditions to said user apparatus via the
 communication line.

47. The server according to Claim 46, wherein said condition receiving
 means comprises:

start command receiving means for receiving a service start command
 from said user apparatus;

software sending means for sending software for clients of
 predetermined form to said user apparatus after receiving said service
 start command; and

second condition receiving means for receiving said conditions inputted
 from said user apparatus based on said software for clients.

48. The server according to Claim 47, wherein said software for clients
 comprises:

processing of obtaining said conditions, processing of converting said
 conditions into formats capable of being used in processing on said
 5 server's part; and

format conversion and display processing for presenting to the user
 said radio propagation environment information obtained through the
 processing on said server's part.

49. The server according to Claim 46, wherein said conditions are
 comprised of user's area appliance placement information and radio

base station information.

50. The server according to Claim 47, wherein the means for inputting said conditions by said user apparatus is constituted by:

inputting/editing means for performing input and edition of user conditions (said user's area appliance placement information and said radio base station information);

determining means for making a determination on whether or not said user's conditions are correctly inputted;

input completion determining means for making a determination on completion of said input of conditions; and

format converting means for converting said input conditions into formats capable of being used on said server's part.

51. The server according to Claim 47, wherein said software for clients comprises:

an editor portion for said processing of obtaining conditions; and a display portion for said display processing.

52. The server according to Claim 51, wherein said editor portion has a function of having appliance placement specific of each user and so on inputted from said user apparatus and converting user specific information such as said appliance placement into a predetermined format.

53. The server according to Claim 51, wherein said display portion has a function of having said radio propagation environment information displayed on said user apparatus in a form convenient for the user.

54. The server according to Claim 50, wherein said inputting/editing

means comprises:

dividing means for dividing the appliance in said appliance placement information into predetermined shapes; and

5 position information generating means for generating information of the position of said divided appliance.

55. The server according to Claim 54, wherein said position information is three-dimensional information.

56. The server according to Claim 50, wherein in said inputting/editing means, information of the position in which said radio base station is placed, information of antenna types and information of sending electric power are inputted as said radio base station information.

57. The server according to Claim 46, wherein said radio propagation environment information is generated by using a propagation simulating program.

58. The server according to Claim 46, wherein said radio propagation environment information is information obtained from receipt electric power and delay variance information in each observation area in the case of dividing said area environment into a plurality of observation
5 areas.

59. The server according to Claim 46, wherein said radio propagation environment information is obtained by generating rays based on the antenna pattern defined in said radio base station, and considering reflection and diffraction by the appliance in said area.

60. The server according to Claim 46, wherein said radio propagation environment information is generated by:

M defining means for defining the number of observation areas M for an observation area ID that is a variable for identifying observation areas;

propagation property estimating means for using ray tracing to estimate a propagation property in the observation area defined by said observation area ID;

storing data means for storing the receipt electric power and delay variance equivalent to the result obtained by propagation property estimating means in propagation property data having an arrangement with said observation area ID as an index;

subtracting means for subtracting 1 from said observation area ID; ID determining means for making a determination on whether or not said observation area ID is greater than 1; and

communication possibility determining means for making a determination on possibility of communication in each observation area if said observation area ID is smaller than 1 as a result of this determination.

61. A record medium recording therein a control program of a propagation environment notification method in a radio communication system constituted by a radio base station and a radio terminal, said propagation environment notification method comprising:

a first step of sending conditions about the user's area layout from a user terminal to a server via a communication line;

a second step of generating said user's area radio propagation environment information based on said conditions by said server receiving said conditions; and

10 a third step of sending said radio propagation environment
information from said server to said user terminal via the communication
line,

wherein said first step is comprised of:

15 a twenty-first step of performing input and edition of user conditions
(said user's area appliance placement information and said radio base
station information);

a twenty-second step of making a determination on whether or not said
user's conditions are correctly inputted;

20 a twenty-third step of making a determination on completion of said
input of conditions;

a twenty-fourth step of converting said input conditions into formats
capable of being used on said server's part; and

a condition inputting step of inputting said conditions by said user
terminal; and

25 a control program comprised of these twenty-first to twenty-fourth
steps is recorded in said record medium.

62. A record medium recording therein a control program of a propagation
environment notification method in a radio communication system
constituted by a radio base station and a radio terminal, said
propagation environment notification method comprising:

5 a first step of sending conditions about the user's area layout from
a user terminal to a server via a communication line;

a second step of generating said user's area radio propagation
environment information based on said conditions by said server

receiving said conditions; and

10 a third step of sending said radio propagation environment information from said server to said user terminal via the communication line, wherein said second step is comprised of:

a forty-first step of defining the number of observation areas M for an observation area ID that is a variable for identifying observation areas;

15 a forty-second step of using ray tracing to estimate a propagation property in the observation area defined by said observation area ID;

a forty-third step of storing the receipt electric power and delay variance equivalent to the result obtained in said forty-second step

20 in propagation property data having an arrangement with said observation area ID as an index;

a forty-fourth step of subtracting 1 from said observation area ID;

a forty-fifth step of making a determination on whether or not said observation area ID is greater than 1; and

25 a forty-sixth step of making a determination on possibility of communication in each observation area if said observation area ID is smaller than 1 as a result of this determination, and a control program comprised of these forty-first to forty-sixth steps is recorded in said record medium.

63. The propagation environment notification method in a radio communication system according to Claim 1, wherein said radio base station is configured as a plurality of radio base stations, and said second step comprises:

5 a fifty-first step of estimating a propagation environment for a radio wave emitted from each of said plurality of radio base stations in said user's area layout to generate individual radio wave propagation environment information;

10 a fifty-second step of using said individual radio wave propagation environment information to calculate a signal-to-interference ratio expressed by the ratio between the receipt electric power from targeted said radio base stations and the receipt electric power from non-targeted said radio base stations; and

15 a fifty-third step of generating said radio propagation environment information for estimating the possibility of communication in said user's area layout, based on said individual radio wave propagation environment information and said signal-to-interference ratio.

64. The propagation environment notification method in a radio communication system according to Claim 63, wherein said fifty-second step comprises:

5 a sixty-first step of computing the sum of receipt electric power from non-targeted said radio base stations (total interference voltage); and

a sixty-second step of computing the ratio between the receipt electric power from targeted said radio base stations and said total interference electric power (signal-to-interference ratio) .

65. The propagation environment notification method in a radio communication system according to Claim 63, wherein said fifty-second step comprises:

5 non-targeted said radio base stations at positions in which targeted
said radio base stations are placed, as the interference electric power
in targeted base stations; and

Sub
cal
10

THE

10 a seventy-third step of generating said radio propagation environment
information for making a determination on receipt properties based
on the interference degradation level information obtained in said

seventy-first step and the receipt possibility evaluation information obtained in said seventy-second step.

68. The propagation environment notification method in a radio communication system according to Claim 63, wherein a second radio wave emission source different from said radio base station is included as a radio wave emission source in said fifty-first step, and in said fifty-first step, radio waves emitted from said second radio wave emission source are also covered as targets for estimating propagation environments.

69. The propagation environment notification system in a radio communication system according to Claim 16, wherein said radio base station is configured as a plurality of radio base stations, and said information generating means comprises:

individual radio wave propagation environment information generating means for estimating a propagation environment for a radio wave emitted from each of said plurality of radio base stations in said user's area layout to generate individual radio wave propagation environment information;

10 signal-to-interference ratio calculating means for using said individual radio wave propagation environment information to calculate a signal-to-interference ratio expressed by the ratio between the receipt electric power from targeted said radio base stations and the receipt electric power from non-targeted said radio base stations;

15 and

communication possibility estimating means for generating said radio

propagation environment information for estimating the possibility of communication in said user's area layout, based on said individual radio wave propagation environment information and said signal-to-interference ratio.

70. The propagation environment notification system in a radio communication system according to Claim 69, wherein said signal-to-interference ratio calculating means comprises: total interference electric power computing means for computing the sum of receipt electric power from non-targeted said radio base stations (total interference electric power); and signal-to-interference ratio computing means for computing the ratio between the receipt electric power from targeted said radio base stations and said total interference electric power (signal-to-interference ratio) .

71. The propagation environment notification system in a radio communication system according to Claim 69, wherein said signal-to-interference ratio calculating means comprises: first computing means for computing the receipt electric power from non-targeted said radio base stations at positions in which targeted said radio base stations are placed, as the interference electric power in targeted base stations; and second computing means for computing the ratio between the receipt electric power when targeted said radio base stations receive radio waves sent from respective observation points and the interference electric power in targeted said base stations (signal-to-interference

ratio).

72. The propagation environment notification system in a radio communication system according to Claim 71, wherein the signal-to-interference ratio obtained by said signal-to-interference ratio calculating means or the signal-to-interference ratio obtained by said second computing means, whichever smaller, is defined as a signal-to-interference ratio.

73. The propagation environment notification system in a radio communication system according to Claim 69, wherein said communication possibility estimating means comprises:

interference degradation level computing means for computing an interference degradation level based on the throughput threshold value of said radio base stations and said signal-to-interference ratio; receipt possibility evaluating means for evaluating receipt possibility from estimated values of the receipt electric power and delay variance of radio waves sent from said radio base stations; and receipt property determination result generating means for making a determination on receipt properties based on the interference degradation level information obtained by said interference degradation level computing means and the receipt possibility evaluation information obtained by said receipt possibility evaluating means to generate said radio propagation environment information for making a determination on receipt properties.

74. The propagation environment notification system in a radio communication system according to Claim 69, wherein a second radio

wave emission source different from said radio base station is included as a radio wave emission source in said individual radio wave propagation environment information generating means, and said
5 individual radio wave propagation environment information generating means also covers radio waves emitted from said second radio wave emission source as targets for estimating propagation environments.

75. The user terminal according to Claim 31, wherein said radio base station is configured as a plurality of radio base stations, and said information receiving means comprises:

Sub
ai
5 individual radio wave propagation environment information generating means for estimating a propagation environment for a radio wave emitted from each of said plurality of radio base stations in said user's area layout to generate individual radio wave propagation environment information;

10 signal-to-interference ratio calculating means for using said individual radio wave propagation environment information to calculate a signal-to-interference ratio expressed by the ratio between the receipt electric power from targeted said radio base stations and the receipt electric power from non-targeted said radio base stations; and

15 communication possibility information receiving means for receiving said radio propagation environment information for estimating the possibility of communication in said user's area layout, based on said individual radio wave propagation environment information and said signal-to-interference ratio.

5

10

5

79. The user terminal according to Claim 75, wherein said communication possibility information receiving means comprises interference degradation level computing means for computing an interference degradation level based on the throughput threshold value of said radio base stations and said signal-to-interference ratio; receipt possibility evaluating means for evaluating receipt possibility from estimated values of the receipt electric power and delay variance of radio waves sent from said radio base stations; and radio propagation environment information receiving means for receiving said radio propagation environment information for making a determination on receipt properties based on the interference degradation level information obtained by said interference degradation level computing means and the receipt possibility evaluation information obtained by said receipt possibility evaluating means.

80. The user terminal according to Claim 75, wherein a second radio wave emission source different from said radio base station is included as a radio wave emission source in said individual radio wave propagation environment information generating means, and said individual radio wave propagation environment information generating means also covers radio waves emitted from said second radio wave emission source as targets for estimating propagation environments.

81. The server according to Claim 46, wherein said radio base station is configured as a plurality of radio base stations, and said information sending means comprises:

individual radio wave propagation environment information

5 generating means for estimating a propagation environment for a radio wave emitted from each of said plurality of radio base stations in said user's area layout to generate individual radio wave propagation environment information;

signal-to-interference ratio calculating means for using said

10 individual radiowave propagation environment information to calculate a signal-to-interference ratio expressed by the ratio between the receipt electric power from targeted said radio base stations and the receipt electric power from non-targeted said radio base stations; and

15 communication possibility information sending means for sending said radio propagation environment information for estimating the possibility of communication in said user's area layout, based on said individual radio wave propagation environment information and said signal-to-interference ratio.

82. The server according to Claim 81, wherein said

signal-to-interference ratio calculating means comprises:

total interference electric power computing means for computing the sum of receipt electric power from non-targeted said radio base stations

5 (total interference electric power); and

signal-to-interference ratio computing means for computing the ratio between the receipt electric power from targeted said radio base stations and said total interference electric power (signal-to-interference ratio).

83. The server according to Claim 81, wherein said

signal-to-interference ratio calculating means comprises:

first computing means for computing the receipt electric power from non-targeted said radio base stations at positions in which targeted
5 said radio base stations are placed, as the interference electric power in targeted base stations; and

second computing means for computing the ratio between the receipt electric power when targeted said radio base stations receive radio waves sent from respective observation points and the interference
10 electric power in targeted said base stations (signal-to-interference ratio).

84. The server according to Claim 83, wherein the

signal-to-interference ratio obtained by said signal-to-interference ratio calculating means or the signal-to-interference ratio obtained by said second computing means, whichever smaller, is defined as a
5 signal-to-interference ratio.

85. The server according to Claim 81, wherein said communication possibility information sending means comprises:

interference degradation level computing means for computing an interference degradation level based on the throughput threshold value
5 of said radio base stations and said signal-to-interference ratio; receipt possibility evaluating means for evaluating receipt possibility from estimated values of the receipt electric power and delay variance of radio waves sent from said radio base stations; and radio propagation environment information sending means for sending

10 said radio propagation environment information for
making a determination on receipt properties based on the interference
degradation level information obtained by said interference
degradation level computing means and the receipt possibility
evaluation information obtained by said receipt possibility evaluating
15 means.

Sub
ai
86. The server according to Claim 81, wherein a second radio wave emission
source different from said radio base station is included as a radio
wave emission source in said individual radio wave propagation
environment information generating means, and said individual radio
wave propagation environment information generating means also covers
radio waves emitted from said second radio wave emission source as
targets for estimating propagation environments.

87. The record medium according to Claim 61, wherein said radio base
station is configured as a plurality of radio base stations, and said
second step comprises:

a fifty-first step of estimating a propagation environment for a radio
5 wave emitted from each of said plurality of radio base stations in
said user's area layout to generate individual radio wave propagation
environment information;

a fifty-second step of using said individual radio wave propagation
environment information to calculate a signal-to-interference ratio

10 expressed by the ratio between the receipt electric power from targeted
said radio base stations and the receipt electric power from
non-targeted said radio base stations; and

a fifty-third step of generating said radio propagation environment information for estimating the possibility of communication in said user's area layout, based on said individual radio wave propagation environment information and said signal-to-interference ratio.

88. The record medium according to Claim 87, wherein said fifty-second step comprises:

a sixty-first step of computing the sum of receipt electric power from non-targeted said radio base stations (total interference electric power); and

a sixty-second step of computing the ratio between the receipt electric power from targeted said radio base stations and said total interference electric power (signal-to-interference ratio).

89. The record medium according to Claim 87 or 88, wherein said fifty-second step comprises:

a sixty-sixth step of computing the receipt electric power from non-targeted said radio base stations at positions in which targeted said radio base stations are placed, as the interference electric power in targeted base stations; and

a sixty-seventh step of computing the ratio between the receipt electric power when targeted said radio base stations receive radio waves sent from respective observation points and the interference electric power in targeted said base stations (signal-to-interference ratio).

90. The record medium according to Claim 89, wherein the signal-to-interference ratio obtained in said sixty-second step or

the signal-to-interference ratio obtained in said sixty-seventh step, whichever smaller, is defined as a signal-to-interference ratio.

91. The record medium according to Claim 87, wherein said fifty-third step comprises:

a seventy-first step of computing an interference degradation level based on the throughput threshold value of said radio base stations and said signal-to-interference ratio;

a seventy-second step of evaluating receipt possibility from estimated values of the receipt electric power and delay variance of radio waves sent from said radio base stations; and

a seventy-third step of generating said radio propagation environment information for making a determination on receipt properties based on the interference degradation level information obtained in said seventy-first step and the receipt possibility evaluation information obtained in said seventy-second step.

92. The record medium according to Claim 87, wherein a second radio wave emission source different from said radio base station is included as a radio wave emission source in said fifty-first step, and in said fifty-first step, radio waves emitted from said second radio wave emission source are also covered as targets for estimating propagation environments.

93. The propagation environment notification method in a radio communication system according to Claim 13, wherein said receipt electric power and delay variance information is expressed in a visually identifiable form, and said radio propagation environment information

5 corresponding to said receipt electric power and delay variance information is also expressed in a visually identifiable form.

94. The propagation environment notification method in a radio communication system according to Claim 93, wherein said receipt electric power is expressed by brightness information, said delay variance information is expressed by chromaticity information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

95. The propagation environment notification method in a radio communication system according to Claim 93, wherein said receipt electric power is expressed by chromaticity information, said delay variance information is expressed by brightness information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

96. The propagation environment notification method in a radio communication system according to Claim 93, wherein brightness is kept constant and said receipt electric power and delay variance information is expressed by chromaticity, and said radio propagation environment information is expressed as color information with said brightness kept constant.

97. The propagation environment notification method in a radio communication system according to Claim 67, wherein said interference degradation level information and receipt possibility evaluation

information is expressed in a visually identifiable form, and
5 said radio propagation environment information corresponding to said
interference degradation level information and receipt possibility
evaluation information is also expressed in a visually identifiable
form.

98. The propagation environment notification method in a radio
communication system according to Claim 87, wherein said interference
degradation level information is expressed by brightness information,
said receipt possibility evaluation information is expressed by
chromaticity information, and said radio propagation environment
information is expressed as color information obtained from said
brightness information and said chromaticity information.

99. The propagation environment notification method in a radio
communication system according to Claim 97, wherein said interference
degradation level information is expressed by chromaticity information,
said receipt possibility evaluation information is expressed by
5 brightness information, and said radio propagation environment
information is expressed as color information obtained from said
brightness information and said chromaticity information.

100. The propagation environment notification method in a radio
communication system according to Claim 97, wherein brightness is kept
constant and said interference degradation level information and
receipt possibility evaluation information is expressed by
5 chromaticity, and said radio propagation environment information is
expressed as color information with said brightness kept constant.

101. The propagation environment notification system in a radio communication system according to Claim 28, wherein said receipt electric power and delay variance information is expressed in a visually identifiable form, and said radio propagation environment information corresponding to said receipt electric power and delay variance information is also expressed in a visually identifiable form.

102. The propagation environment notification system in a radio communication system according to Claim 101, wherein said receipt electric power is expressed by brightness information, said delay variance information is expressed by chromaticity information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

103. The propagation environment notification system in a radio communication system according to Claim 101, wherein said receipt electric power is expressed by chromaticity information, said delay variance information is expressed by brightness information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

104. The propagation environment notification system in a radio communication system according to Claim 101, wherein brightness is kept constant and said receipt electric power and delay variance information is expressed by chromaticity, and said radio propagation environment information is expressed as color information with said

brightness kept constant.

105. The propagation environment notification system in a radio communication system according to Claim 73, wherein said interference degradation level information and receipt possibility evaluation information is expressed in a visually identifiable form, and said radio propagation environment information corresponding to said interference degradation level information and receipt possibility evaluation information is also expressed in a visually identifiable form.

106. The propagation environment notification system in a radio communication system according to Claim 105, wherein said interference degradation level information is expressed by brightness information, said receipt possibility evaluation information is expressed by chromaticity information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

107. The propagation environment notification system in a radio communication system according to Claim 105, wherein said interference degradation level information is expressed by chromaticity information, said receipt possibility evaluation information is expressed by brightness information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

108. The propagation environment notification system in a radio communication system according to Claim 105, wherein brightness is

Sub
a1

105
106
107
108

kept constant and said interference degradation level information and receipt possibility evaluation information is expressed by chromaticity, and said radio propagation environment information is expressed as color information with said brightness kept constant.

109. The user terminal according to Claim 43, wherein said receipt electric power and delay variance information is expressed in a visually identifiable form, and said radio propagation environment information corresponding to said receipt electric power and delay variance information is also expressed in a visually identifiable form.

110. The user terminal according to Claim 109, wherein said receipt electric power is expressed by brightness information, said delay variance information is expressed by chromaticity information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

111. The user terminal according to Claim 109, wherein said receipt electric power is expressed by chromaticity information, said delay variance information is expressed by brightness information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

112. The user terminal according to Claim 109, wherein brightness is kept constant and said receipt electric power and delay variance information is expressed by chromaticity, and said radio propagation

Sub
a1

53
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

environment information is expressed as color information
5 with said brightness kept constant.

113. The user terminal according to Claim 79, wherein said interference
degradation level information and receipt possibility evaluation
information is expressed in a visually identifiable form, and said
radio propagation environment information corresponding to said
5 interference degradation level information and receipt possibility
evaluation information is also expressed in a visually identifiable
form.

114. The user terminal according to Claim 113, wherein said interference
degradation level information is expressed by brightness information,
said receipt possibility evaluation information is expressed by
chromaticity information, and said radio propagation environment
information is expressed as color information obtained from said
brightness information and said chromaticity information.

115. The user terminal according to Claim 113, wherein said interference
degradation level information is expressed by chromaticity information,
said receipt possibility evaluation information is expressed by
brightness information, and said radio propagation environment
5 information is expressed as color information obtained from said
brightness information and said chromaticity information.

116. The user terminal according to Claim 113, wherein brightness is
kept constant and said interference degradation level information and
receipt possibility evaluation information is expressed by
chromaticity, and said radio propagation environment information is

5 expressed as color information with said brightness kept constant.

117. The server according to Claim 58, wherein said receipt electric power and delay variance information is expressed in a visually identifiable form, and said radio propagation environment information corresponding to said receipt electric power and delay variance

5 information is also expressed in a visually identifiable form.

118. The server according to Claim 117, wherein said receipt electric power is expressed by brightness information, said delay variance information is expressed by chromaticity information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

119. The server according to Claim 117, wherein said receipt electric power is expressed by chromaticity information, said delay variance information is expressed by brightness information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

120. The server according to Claim 117, wherein brightness is kept constant and said receipt electric power and delay variance information is expressed by chromaticity, and said radio propagation environment information is expressed as color information with said brightness kept constant.

121. The server according to Claim 85, wherein said interference degradation level information and receipt possibility evaluation

information is expressed in a visually identifiable form, and said radio propagation environment information corresponding to said interference degradation level information and receipt possibility evaluation information is also expressed in a visually identifiable form.

122. The server according to Claim 121, wherein said interference degradation level information is expressed by brightness information, said receipt possibility evaluation information is expressed by chromaticity information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

123. The server according to Claim 121, wherein said interference degradation level information is expressed by chromaticity information, said receipt possibility evaluation information is expressed by brightness information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

124. The server according to Claim 121, wherein brightness is kept constant and said interference degradation level information and receipt possibility evaluation information is expressed by chromaticity, and said radio propagation environment information is expressed as color information with said brightness kept constant.

125. The record medium according to Claim 62, wherein said receipt electric power and delay variance information is expressed in a visually identifiable form, and said radio propagation environment information

corresponding to said receipt electric power and delay variance

5 information is also expressed in a visually identifiable form.

126. The record medium according to Claim 125, wherein said receipt electric power is expressed by brightness information, said delay variance information is expressed by chromaticity information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

Sub
a1
127. The record medium according to Claim 125, wherein said receipt electric power is expressed by chromaticity information, said delay variance information is expressed by brightness information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

128. The record medium according to Claim 125, wherein brightness is kept constant and said receipt electric power and delay variance information is expressed by chromaticity, and said radio propagation environment information is expressed as color information with said brightness kept constant.

129. The record medium according to Claim 91, wherein said interference degradation level information and receipt possibility evaluation information is expressed in a visually identifiable form, and said radio propagation environment information corresponding to said interference degradation level information and receipt possibility evaluation information is also expressed in a visually identifiable

form.

130. The record medium according to Claim 129, wherein said interference degradation level information is expressed by brightness information, said receipt possibility evaluation information is expressed by chromaticity information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

131. The record medium according to Claim 129, wherein said interference degradation level information is expressed by chromaticity information, said receipt possibility evaluation information is expressed by brightness information, and said radio propagation environment information is expressed as color information obtained from said brightness information and said chromaticity information.

132. The record medium according to Claim 129, wherein brightness is kept constant and said interference degradation level information and receipt possibility evaluation information is expressed by chromaticity, and said radio propagation environment information is expressed as color information with said brightness kept constant.